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FILING DATE APPLICATION NO. FIRST NAMED INVENTOR ATTORNEY DOCKET NO. CONFIRMATION NO. 10/031,125 05/15/2002 32860-000265/US **Thomas Jansing** 6204 30596 07/13/2004 EXAMINER 7590 HARNESS, DICKEY & PIERCE, P.L.C. CREPEAU, JONATHAN P.O.BOX 8910 RESTON, VA 20195 ART UNIT PAPER NUMBER 1746

DATE MAILED: 07/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary    10/031,125		Application No	l An III
Examiner  - The MAILING DATE of this communication appears on the corer sheet with the correspondence address Period for Reply  A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.  - Extensions of time may be available under the provisions of 37 CFR 1 (196). In no event, flowwere, may a reply be timely filed - infect St( o) McMTHs from the maining date of this communication.  - If NO period for reply is specified above, the maximum statistory period value specified value previous of 37 CFR 1 (196). In no event, flowwere, may a reply be timely filed - if NO period for reply is specified above, the maximum statistory period value specified value previous of 37 CFR 1 (196). In no event, flowwere, may a reply be timely filed of this communication.  - If NO period for reply is specified above, the maximum statistory period value specified value previous of the communication.  - If NO period for reply is specified above, the maximum statistory period value specified value previous of this communication.  - If NO period for reply is specified above, the maximum statistory period value specified value previous of the communication.  - If NO period for reply is specified above, the maximum statistory period value specified value previous of the communication.  - If NO period for reply is specified above, the maximum statistory period value specified value specified value in the previous of the specified value of the communication.  - If NO period for reply is specified above, the maximum statistory period value and the communication.  - If NO period for reply is specified value and the communication.  - If NO period or reply is specified above, the maximum statistory period value and the communication.  - If NO period or reply is specified above, the maximum statistory period value and the communication.  - If NO period is reply is specified above, the maximum statistory period value and the communication.  - If NO period is not period is not period to comm		Application No.	Applicant(s)
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A SHORTEND STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAIL ING DATE OF THIS COMMUNICATION.  - after SIX (S) MONTHS from the mailling date of this communication if the period for reply the period set of the communication if the period for reply the period set of the communication if the period for reply the period set of the communication if the period for reply the period set is submit into (5) days, a reply whithin the statutory minimum of thiny (30) days will be considered timely if NO period for reply the specified above, the manimum statutory ported vell apply and will receive 30 (8) MONTHS from the mailing date of the communication if NO period for reply the specified above, the manimum statutory ported vell apply and will receive 30 (8) MONTHS from the mailing date of this communication, even if timely filed, may reduce any search of the reply the specified above, the manimum statutory ported vell apply and will receive 30 (8) MONTHS from the mailing date of this communication, even if timely filed, may reduce any search and patient learn adjustment. See 37 CFR 1.704(b).  Status  1) ME Responsive to communication (s) filed on 15 May 2002.  2a) This action is FINAL.  2b) MThis action is non-final.  3) Since this application is in condition for allowance except for formal matters, prosecution as to the ments is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.  Disposition of Claims  4) Claim(s) 1-22 is/are pending in the application.  4a) Of the above claim(s) is/are allowed.  5) Claim(s) 1-22 is/are allowed.  6) Claim(s) 1-22 is/are allowed.  6) Claim(s) 1-22 is/are epicted to.  8) Claim(s) 1-22 is/are epicted to.  8) Claim(s) 1-22 is/are epicted to.  10) The drawing(s) filed on 1-13/are: a) 1-13/a			<u> </u>
THE MAILING DATE OF THIS COMMUNICATION.  Extensions of time may be available under the provisions of 30 CPR 1.13(a). In no event, however, may a reply be timely filled after SX (6) MCNT151 from the mailing date of this communication.  **The provision of the provision of the provision of 30 CPR 1.13(a). In no event, however, may a reply be timely filled after SX (6) MCNT151 from the mailing date of this communication.  **Fallule to reply valish the saf or extended provision of the provision of Claim(S)  **Joint Claim(S) 1-20 is/are pending in the application.  4a) Of the above claim(S) is/are withdrawn from consideration.  4b) Claim(S) 1-20 is/are allowed.  5c) Claim(S) is/are allowed.  6c) Claim(S) is/are allowed.  6c) Claim(S) is/are allowed.  6c) Claim(S) is/are subjected to by the Examiner.  7b) The provision of replacement drawing sheet(s) including the correction is required if the drawing(s) filed on is/are: a) accepted or b) objected to by the Examiner.  7c) The drawing(S) filed on is/are: a) accepted or b) objected to by the Examiner.  7c) The action is objected to by the Examiner.  8pplication Papers  9) The specification is objected to by the Examiner.  10) The drawing(S) filed on is/are: a) accepted or b) objected to by the Examiner.  Application Papers  9) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  a) All b) Some * c) None of:  1 Certified copies of the priority documents have been received.  2 Certified copies of the priority documents have been received in Application No	The MAILING DATE of this comm	nunication appears on the cover she	et with the correspondence address
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12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  a) All b) Some * c) None of:  1. Certified copies of the priority documents have been received.  2. Certified copies of the priority documents have been received in Application No  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  * See the attached detailed Office action for a list of the certified copies not received.  **Attachment(s)  Notice of References Cited (PTO-892)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  Notice of Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)    Notice of Informal Patent Application (PTO-152)	11) I he oath or declaration is objected	to by the Examiner. Note the attached	ched Office Action or form PTO-152.
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#### **DETAILED ACTION**

## Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
- 2. Claims 1-3, 5, 8, 9, 11, 12, and 16-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Nazmy (U.S. Patent 5,064,734). The reference is directed to a fuel cell comprising electrodes (2, 3), current collecting members (7), and interconnecting plates (4) (see Fig. 1). The current collecting members are in the form of a fabric or fleece (i.e., mesh) (see col. 8, line 53). The members are made of an oxide-dispersion-hardened nickel or nickel/chromium alloy coated with chromium oxide (see abstract). The chromium oxide layer is oxidation-resistant and protects the core nickel layer from oxidation (see col. 8, line 37). The chromium oxide layer has a thickness of 1 to 20 microns (see col. 8, line 43).

Thus, the instant claims are anticipated.

3. Claims 1, 2, 4, 8, 10, 16, 17, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by DE 19517443. The reference teaches a fuel cell comprising electrodes, a nickel-coated steel mesh current collector on the anode side of the cell, and a bipolar plate

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mesh would inherently protect the stainless steel from oxidation. Regarding claims 2 and 17, the nickel coating is also "oxidation resistant" because it would form NiO and resist further oxidation. Regarding claim 8, the claimed layer thickness of approximately 0.1-10 microns is considered to be anticipated because the reference teaches on page 3 of the translation that the wire may be 0.1 mm (100 microns) in diameter and may comprise 5% nickel, which would yield an approximate nickel layer thickness of 5 microns.

Thus, the instant claims are anticipated.

## Claim Rejections - 35 USC § 103

- 4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
  - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
- 5. Claims 4, 10, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nazmy in view of DE 19517443.

Nazmy is applied to claims 1-3, 5, 8, 9, 11, 12, and 16-19 for the reasons stated above. However, the reference does not expressly teach that the core of the wire is made of stainless steel, as recited in claims 4, 10, and 20.

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As noted above, DE '443 teaches a coated steel mesh current collector in the abstract.

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the disclosure of DE '443 indicates that stainless steel is a suitable material for use in fuel cell mesh collectors. The selection of a known material based on its suitability for its intended use has generally been held to be *prima facie* obvious (MPEP §2144.07). As such, it would be obvious to use stainless steel as the core material of the mesh of Nazmy.

6. Claims 6, 7, 13, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nazmy in view of DE 29802444.

Nazmy is applied to claims 1-3, 5, 8, 9, 11, 12, and 16-19 for the reasons stated above. However, the reference does not expressly teach that the coating comprises chromium carbide, as recited in the instant claims.

WO 99/41795 is taken as an equivalent of DE 29802444 as both publications are in the same family. In the abstract, WO '795 teaches a chromium carbide layer located on a fuel cell separator plate. On page 3 of the machine translation, the reference teaches that the chromium carbide layer is oxidation-resistant under operating conditions and maintains good electrical conductivity.

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Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the disclosure of DE '444 (WO '795) indicates that chromium carbide is a suitable material for use as oxidation-resistant layers in high-temperature fuel cells. The selection of a known material based on its suitability for its intended use has generally been held to be *prima facie* obvious (MPEP §2144.07). As such, it would be obvious to use chromium carbide as the oxidation-resistant coating of the mesh of Nazmy.

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nazmy in view of DE 19517443 as applied to claims 4, 10, and 20 above, and further in view of DE 29802444.

Nazmy does not expressly teach that the coating comprises chromium carbide, as recited in claim 14.

WO 99/41795 is taken as an equivalent of DE 29802444 as both publications are in the same family. In the abstract, WO '795 teaches a chromium carbide layer located on a fuel cell separator plate. On page 3 of the machine translation, the reference teaches that the chromium carbide layer is oxidation-resistant under operating conditions and maintains good electrical conductivity.

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the disclosure of DE '444 (WO '795)

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indicates that chromium carbide is a suitable material for use as oxidation-resistant layers in high-temperature fuel cells. The selection of a known material based on its suitability for its intended use has generally been held to be *prima facie* obvious (MPEP §2144.07). As such, it would be obvious to use chromium carbide as the oxidation-resistant coating of the mesh of Nazmy.

#### Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr, can be reached at (571) 272-1414. The phone number for the organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jonathan Crepeau Patent Examiner Art Unit 1746

July 8, 2004